REMARKS

Applicant respectfully requests reconsideration of this application in view of the following remarks.

Withdrawal of the Finality

As a preliminary matter, Applicant respectfully submits that the finality of the current Office Action is improper because the Office Action does not establish a *prima facie* rejection for claims 46-49. The Office Action merely concludes that claims 46-49 are rejected "as being unpatentable over Mukherjee as applied to claims 9 and 25 above" and "for similar reasons stated above." However, the rejections of claims 9 and 25 are not pertinent to the limitations of claims 46-49, and there are no other reasons for rejection directed to the limitations of claims 46-49. In particular, claims 46-49 are directed to different combinations of discrete elements for a filter element and an amplifying element. In contrast, claim 9 is directed to "a fourth switch" to select a filter and amplifying element. Likewise, the rejection of claim 9 focuses on the purported disclosure of a fourth switch. Nothing in the rejection of claim 9 addresses whether or not a filter element and an amplifying element might be in one or more discrete elements. Similarly, claim 25 is directed to a method operation of selecting a filter and amplifying element. The rejection of claim 25 is simply states "the limitations are shown above." However, nothing in the preceding text of the Office Action purports to show whether or not a filter element and an amplifying element might be in one or more discrete elements. Therefore, given that the Office Action does not show how the limitations of claims 46-49 might be discloses, taught, or suggested by the cited prior art, the Office Action fails to establish a *prima facie* rejection of claims 46-49. Accordingly, Applicant respectfully requests that the finality of the Office Action be withdrawn.

Status of the Claims

Claims 1-49 are pending. Claims 6, 47, and 49 are currently amended to place them in better form for appeal. No claims are canceled. No claims are added. No new matter has been added.

Summary of the Office Action

Claims 31-43 are allowed.

Claims 11-17 and 27-30 stand objected to as depending from a rejected independent claim, but would be allowable if rewritten in independent form to include all intervening claim limitations.

Claims 18-25 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,226,322 B1 to Mukherjee (hereinafter "Mukherjee").

Claims 1-9 and 44-45 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Mukherjee.

Claims 10, 26, and 46-49 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Mukherjee as applied to claims 9 and 25 above.

Response to Rejections under 35 U.S.C. § 102(e)

The Office Action rejected claims 18-25 under 35 U.S.C. § 102(e) as being anticipated by Mukherjee. Applicant respectfully requests withdrawal of these rejections because the cited reference fails to disclose all of the limitations of the claims.

CLAIMS 18-30 AND 48-49

Claim 18 stands rejected under 35 U.S.C. § 102(e) as being anticipated by Mukherjee. Applicant respectfully submits that claim 18 is patentable over the cited reference because Mukherjee does not disclose all of the limitations of the claim. Claim 18 recites:

> A method of improving transmission of digital subscriber line (DSL) signals over a local loop, comprising:
>
> **configuring a loop extender** with
>
> a plurality of upstream complex impedances coupled in parallel;
>
> a plurality of downstream complex impedances coupled in parallel;
>
> a plurality of upstream filter and amplifying elements coupled in parallel and coupled in series with the plurality of upstream complex impedances; and
>
> a plurality of downstream filter and amplifying elements coupled in parallel and coupled in series with the plurality of downstream complex impedances.

(Emphasis added).

Applicant respectfully disagrees with the Office Action's characterization of the prior art because Mukherjee fails to disclose all of the limitations of the claim. In particular, Mukherjee does not disclose configuring a loop extender. Furthermore, Mukherjee does not disclose the recited upstream and downstream elements of the loop extender.

The Office Action correctly recognizes that Mukherjee mentions signal repeaters, which are used to extend the otherwise limited operating range of a High-Bit-Rate Digital Subscriber Line (HDSL). However, Mukherjee does not teach any details, either structural or operational, of the mentioned signal repeaters. Additionally, Mukherjee fails to disclosure configuring the signal repeater in any way because the disclosure of Mukherjee is limited to simply mentioning, generally, that a signal repeater might be used in a HDSL system.

Moreover, the Office Action confuses the signal repeaters mentioned in the background section of Mukherjee with the other components of the DSL modem system described in the detailed description section. In particular, the detailed description section describes a DSL modem system (see Figure 1) with an analog front end modem (located at a central office) and a remote modem at an end user location such as a customer's house. Mukherjee, Figure 1. The disclosed DSL modem system does not include a signal repeater, or loop extender. Additionally, as Applicant mentioned in the previous response, Mukherjee specifically teaches that the DSL modem system of Mukherjee is intended to be implemented without a signal repeater, or loop extender. See, Applicant's response mailed 8/1/06, pp. 15-16.

It is improper for the Office Action to try to combine the different hardware components of the DSL modem system, in particular the capacitors and resistors of the analog front end modem, with the mere mention of a signal repeater to assert that Mukherjee purportedly teaches a loop extender with various upstream and downstream elements. In fact, Mukherjee does not teach any such loop extender, as recited in the claim, because Mukherjee teaches, at most, a signal repeater generally (no details of the signal repeater are provided) and a separate DSL modem system with certain hardware components. Mukherjee does not make any connection between the signal repeater and the hardware components of the analog front end modem referred to in the Office Action.

This lack of disclosure by Mukherjee regarding a loop extender with specifically recited limitations fails to support a rejection under 35 U.S.C. § 102(e).

Furthermore, although the Office Action states that claim 18 is rejected under 35 U.S.C. § 102(e), it appears that the Office Action's reasoning is more closely related, although still unreasonable, to an obviousness-type argument to suggest that it might be obvious to combine the hardware components of the analog front end modem of the DSL modem system with the signal repeater. Even under an obviousness-type analysis, this suggestion lacks support because there is no disclosure that the different systems might be thus combined, and Mukherjee teaches away from using a signal repeater with the DSL modem system, as described above. Therefore, the reasoning provided in the Office Action would also fail to support a rejection under 35 U.S.C. §103. Accordingly, the Office Action fails to show how Mukherjee purportedly discloses a loop extender with the recited upstream and downstream elements. Since Mukherjee fails to disclose a loop extender, as recited in the claim, Mukherjee also fails to disclose configuring a loop extender, as recited in the claim.

In contrast, claim 18 recites "configuring a loop extender" having specific upstream and downstream elements. For the reasons stated above, Mukherjee fails to disclose all of the limitations of claim 18. Given that the cited reference fails to disclose all of the limitations of the claim, Applicant respectfully submits that claim 18 is patentable over the cited reference. Accordingly, Applicant requests that the rejection of claim 18 under 35 U.S.C. § 102(e) be withdrawn.

Given that claims 19-30 and 48-49 depend from independent claim 18, which is patentable over the cited reference, Applicant respectfully submits that dependent claims 19-30 and 48-49 are also patentable over the cited reference. Accordingly, Applicant requests that the rejection of claims 19-25 under 35 U.S.C. § 102(e) and the rejection of claims 26 and 48-49 under 35 U.S.C. § 103(a) be withdrawn.

Response to Rejections under 35 U.S.C. § 103(a)

The Office Action rejected claims 1-10, 26, and 44-49 under 35 U.S.C. § 103(a) as being unpatentable over Mukherjee. Applicant respectfully requests withdrawal of

these rejections because the combination of cited references fails to teach or suggest all of the limitations of the claims.

CLAIMS 1-17 AND 46-47

Claim 1 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Mukherjee. Applicant respectfully submits that claim 1 is patentable over the combination of cited references because the combination does not teach or suggest all of the limitations of the claim. Claim 1 recites "a loop extender" having certain upstream and downstream elements. Although the language of claim 1 is different from the language of claim 18, and the scope of claim 1 is different from the scope of claim 18, Applicant respectfully submits that claim 1 is patentable over Mukherjee at least for the reasons described above, in particular the lack of disclosure by Mukherjee.

The only disclosure of Mukherjee is a non-descript reference to a signal repeater. This reference to a signal repeater does not indicate that the signal repeater does or might include specific hardware or functionality. Therefore, Mukherjee fails to disclose a loop extender having specific impedances and elements.

Moreover, the teachings of Mukherjee related to the analog front end modem of the DSL modem system are inapposite to the reference to a signal repeater. For the sake of argument, even if the analog front end modem were to include impedances and/or elements similar to any of the recited limitations of the loop extender, Mukherjee nevertheless fails to teach or suggest a loop extender with the recited limitations because the analog front end modem is not a signal repeater, or a loop extender. Therefore, Mukherjee fails to teach or suggest all of the limitations of the claim.

In contrast, claim 1 recites "a loop extender" having certain upstream and downstream impedances and elements. For the reasons stated above, Mukherjee fails to teach or suggest all of the limitations of the claim. Accordingly, Applicant respectfully submits claim 1 is patentable over the cited reference.

Additionally, even if Mukherjee were to disclose all of the limitations of the claim, albeit in disparate hardware systems, the Office Action would also fail to provide a proper motivation or suggestion to combine the hardware components of the analog front end modem with the generic reference to the signal repeater. In fact, the Office Action

does not even attempt to provide a possible motivation for such a combination. The Office Action simply ignores the requirement that there must be some motivation to combine the otherwise separate components purportedly individually referenced by Mukherjee. Furthermore, as described above, Mukherjee teaches away from combining the signal repeater with the DSL modem system, including the analog front end modem, in any way because the DSL modem system is intended to provide functionality to render the signal repeater unnecessary. Therefore, Mukherjee does not afford a suggestion or motivation to combine the hardware components of the analog front end modem with the referenced signal repeater. Given that Mukherjee does not provide a suggestion or motivation for such a combination, and the Office Action also fails to provide a suggestion or motivation for the purported reference, Application respectfully submits that the claim is patentable over the cited reference.

Given that the cited references fail to teach or suggest all of the limitations of the claim, and the Office Action fails to establish a motivation to combine the disparate teachings of the cited reference, Applicant respectfully submits that claim 1 is patentable over the cited references. Accordingly, Applicant requests that the rejection of claim 1 under 35 U.S.C. § 103(a) be withdrawn.

Given that claims 2-17 and 46-47 depend from independent claim 1, which is patentable over the cited references, Applicant respectfully submits that dependent claims 2-17 and 46-47 are also patentable over the cited references. Accordingly, Applicant requests that the rejection of claims 2-10 and 46-47 under 35 U.S.C. § 103(a) be withdrawn.

CLAIMS 44-45

In regard to claims 44 and 45, Applicant respectfully reasserts the arguments presented in the previous response. Applicant believes that this approach is fully responsive to the current Office Action and appropriate in light of the fact that the current Office Action fails to respond to Applicant's remarks related to the lack of evidentiary support.

In particular, Applicant traversed the rejections of claims 44 and 45 because Mukherjee fails to disclose sampling digital signals within DSL amplification circuitry.

Although the Office Action acknowledges this lack of disclosure, the Office Action nevertheless purports that such sampling would have been obvious "in order to reduce the memory requirement for processing." However, as Applicant explained in the previous response, the cited reference does not offer such a motivation or suggestion for modifying Mukherjee to sample digital signals within DSL amplification circuitry. Even if Mukherjee were to disclose sample, and even if sampling were to potentially reduce processor memory requirements, in general, there is nevertheless no motivation or suggestion in the cited reference to modify Mukherjee to sample digital signals within DSL amplification circuitry, despite the conclusory assertion in the Office Action.

In order to properly support a rejection under 35 U.S.C. § 103, prior art reference must provide some motivation or suggestion to modify the reference to produce the claimed limitation. Here, there is no disclosure of sampling digital signals within DSL amplification circuitry, and there is no motivation to modify the reference to sample digital signals within DSL amplification circuitry, even if sampling in other locations of the modem might reduce processor memory requirements. Therefore, given that the Office Action fails to provide a motivation or suggestion to modify the reference to sample digital signals within DSL amplification circuitry, the Office Action fails to support a rejection under 35 U.S.C. § 103. Accordingly, Applicant respectfully requests that the rejections of claims 44 and 45 be withdrawn.

Moreover, Applicant repeats the request from Applicant's previous response that the Examiner comply with the requirements of MPEP §2144.03(c) and provide evidentiary support if the current rejection of claims 44 and 45 is to be maintained.

CONCLUSION

It is respectfully submitted that in view of the remarks set forth herein, the rejections and objections have been overcome. If the Examiner believes a telephone interview would expedite the prosecution of this application, the Examiner is invited to contact Jeffrey Holman at (408) 720-8300.

If there are any additional charges, please charge them to Deposit Account No. 02-2666.

Respectfully submitted,

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